# Grade 8 – Review for Final Exam – Monday, June 10th – period 6 & 7

**Chapter 2** – *Traits and How They Change* – pp. 38 - 57

Besides knowing the vocabulary words and the class notes for this chapter, you should read the Section Review Summaries at the end of each Section and read “***Reviewing Main Ideas***” on page 57 and be able to:

* Compare and contrast phenotype and genotype
* Describe some effects the environment has on traits
* Explain how traits are formed
* Differentiate between genetics and heredity
* Explain the results of Mendel’s pea plant experiments
* Identify the results shown by a Punnett square
* Explain how living and nonliving environmental factors impact evolution
* Describe how natural selection occurs in a species
* Compare and contrast selective breeding and natural selection

**Chapter 11 –** *The Sun-Earth-Moon System* – Sections 1 & 2 - pp. 306 - 321

Besides knowing the vocabulary words and the class notes for this chapter, you should read the Section Review Summaries at the end of each Section and read “***Reviewing Main Ideas***” on page 329 concerning Sections 1 & 2 and be able to:

* Differentiate between rotation and revolution.
* Discuss what causes seasons to change.
* Identify phases of the Moon and their cause.
* Explain why solar and lunar eclipses occur
* Infer what the Moon’s surface features may reveal about tis history.

**Chapter 12 –** *The Solar System* –pp. 336 - 363

Besides knowing the vocabulary words and the class notes for this chapter, you should read the Section Review Summaries at the end of each Section and read “***Reviewing Main Ideas***” on page 363 and be able to:

* Compare models of the Solar System
* Explain that gravity holds planets in orbits around the Sun.
* List the Inner Planets in order from the Sun
* Describe each Inner Planet.
* Compare and contrast Venus and Earth.
* Describe the characteristics of Jupiter, Saturn, Uranus and Neptune.
* Explain how Pluto differs from the other outer planets.
* Distinguish among comets, meteoroids, and asteroids.
* Explain that objects from space sometimes impact Earth.

Also review the table of the Planets on pp. 354-355

Bridges – You will need to refer to your notes.

* Describe what forces impact a bridge
* Describe the loads that impact a bridge.
* Describe the major types of bridges, include what they look like and what they are capable of doing.

**Chapter 21** – *Thermal Energy* – Sections 1 & 2 - pp. 608 - 617

Besides knowing the vocabulary words and the class notes for this chapter, you should read the Section Review Summaries at the end of each Section and read “***Reviewing Main Ideas***” (sections 1 & 2) on page 627 and be able to:

* Explain how temperature is related to kinetic energy.
* Describe three scales used for measuring temperature
* Define thermal energy
* Explain the difference between thermal energy and heat
* Describe three ways heat is transferred.
* Identify materials that are insulators or conductors.

**Exam – Part 2 – From first half of the year. Only basic concepts will be addressed.**

**Metric System – refer to your handouts and notes**

* Identify the numerical value of the following prefixes: kilo-; centi- and milli-
* Be able to convert: grams to kilograms; millimeter to kilometer; kilogram to milligram; and other combinations
* Identify the SI units of:
* **Length** – meter (base unit); kilometer, centimeter and millimeter.
* **Volume** – liter (base unit); milliliter and cubic centimeter (cm3)
* **Mass** – gram (base unit); kilogram, centigram and milligram
* Identify the methods by which these measurements are taken:

Meter stick - Graduated cylinder - Triple-beam balance

**Chapter 1 –** *The Nature of Science* **– pp. 5-27**

* Explain the steps used to solve a problem in a scientific way.
* Distinguish between observations and inferences.
* Compare and contrast scientific variables and constants
* Explain how a control is used during an experiment

**Chapter 14** – *Inside the Atom* – pp. 404 - 425

Besides knowing the vocabulary words and the class notes for this chapter, you should read the “***Reviewing Main Ideas***” on page 427 and be able to:

* Explain how scientists discovered subatomic particles (especially Rutherford’s experiment.)
* Explain how today’s model of the atom developed
* Describe the structure of the atom and the applicable charges and functions of the various atomic components.
* Describe the process of radioactive decay
* Explain what is meant by half-life
* Describe how radioactive isotopes are used

**Chapter 15** – *The Periodic Table* – pp. 433 - 455

Besides knowing the vocabulary words and the class notes for this chapter, you should read the “***Reviewing Main Ideas***” on page 457 and be able to:

* Explain how the periodic table is organized
* Interpret an element key
* Classify elements into groups based on similar properties

**Chapter 16** – *Atomic Structure and Chemical Bonds* - sections 1 & 2 pp 464 - 480

Besides knowing the vocabulary words and the class notes for this chapter, you should read the “***Reviewing Main Ideas***” on page 485 and be able to:

* Identify how electrons are arranged in an atom
* Compare how the arrangement of electrons in an atom is related to its place in the periodic table.
* Compare and contrast ionic and covalent bonds
* Distinguish between compounds and molecules
* Interpret chemical shorthand

**Chapter 17** – *Chemical Reactions* – **section 1** - pp. 490 - 501

Besides knowing the vocabulary words and the class notes for this chapter, you should read the “***Reviewing Main Ideas***” on page 513 and be able to:

* Determine whether or not a chemical reaction is occurring
* Determine how to read and understand a balanced equation
* Explain the law of conservation of mass